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(54) Title: TRANSGENIC MONOCOTYLEDONOUS PLANTS OVEREXPRESSING A NHX PROTEIN AND HAVING IMPROVED GROWTH CHARACTERISTICS AND A METHOD FOR MAKING THE SAME

(57) Abstract: The present invention concerns a method for improving plant growth characteristics, comprising increasing, in a monocotyledonous plant, expression of a nucleic acid encoding an NFIX protein and/or increasing activity of an NFIX protein, wherein said plant is grown under non-salt stress conditions.

CD097PCT.ST25.txt
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<213> Suaeda maritima subsp. salsa

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CD097PCT.ST25.txt

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Trp Met Asn Glu Ser Ile Thr Ala Leu Leu Ile Gly Leu Ser Thr Gly
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Ile Ile Ile Leu Leu Ile Ser Gly Gly Lys Ser Ser His Leu Leu Val
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Phe Ser Glu Asp Leu Phe Phe Ile Tyr Leu Leu Pro Pro Ile Ile Phe
 85 90 95

Asn Ala Gly Phe Gln Val Lys Lys Lys Gln Phe Phe Arg Asn Phe Ile
 100 105 110

Thr Ile Ile Leu Phe Gly Ala Val Gly Thr Leu Val Ser Phe Ile Ile
 115 120 125

Ile Ser Leu Gly Ser Ile Ala Ile Phe Gln Lys Met Asp Ile Gly Ser
 130 135 140

Leu Glu Leu Gly Asp Leu Leu Ala Ile Gly Ala Ile Phe Ala Ala Thr
 145 150 155 160

Asp Ser Val Cys Thr Leu Gln Val Leu Asn Gln Asp Glu Thr Pro Leu
 165 170 175

Leu Tyr Ser Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr Ser
 180 185 190

Val Val Leu Phe Asn Ala Ile Gln Asn Phe Asp Leu Thr His Ile Asp
 195 200 205

His Arg Ile Ala Phe Gln Phe Gly Gly Asn Phe Leu Tyr Leu Phe Phe
 210 215 220

Ala Ser Thr Leu Leu Gly Ala Val Thr Gly Leu Leu Ser Ala Tyr Val
 225 230 235 240

Ile Lys Lys Leu Tyr Phe Gly Arg His Ser Thr Asp Arg Glu Val Ala
 245 250 255

Leu Met Met Leu Met Ala Tyr Leu Ser Tyr Met Leu Ala Glu Leu Phe
 260 265 270

Tyr Leu Ser Gly Ile Leu Thr Val Phe Phe Cys Gly Ile Val Met Ser
 275 280 285

His Tyr Thr Trp His Asn Val Thr Glu Ser Ser Arg Val Thr Thr Lys
 290 295 300

His Ala Phe Ala Thr Leu Ser Phe Val Ala Glu Ile Phe Ile Phe Leu
 305 310 315 320

Tyr Val Gly Met Asp Ala Leu Asp Ile Glu Lys Trp Arg Phe Val Ser
 325 330 335

Asp Ser Pro Gly Thr Ser Val Ala Val Ser Ser Ile Leu Leu Gly Leu

CD097PCT.ST25.txt

340 345 350

His Met Val Gly Arg Ala Ala Phe Val Phe Pro Phe Ala Phe Leu Met
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Ile Val Ile Trp Trp Ala Gly Leu Met Lys Ser Ala Val Ser Val Ala
 385 390 395 400

Leu Ala Tyr Asn Gln Phe Ser Arg Ser Gly His Thr Gln Leu Arg Gly
 405 410 415

Asn Ala Ile Met Ile Thr Ser Thr Ile Thr Val Val Leu Phe Ser Thr
 420 425 430

Met Val Phe Gly Leu Leu Thr Lys Pro Leu Ile Leu Phe Met Leu Pro
 435 440 445

Gln Pro Lys His Phe Thr Ser Ala Ser Thr Val Ser Asp Leu Gly Ser
 450 455 460

Pro Lys Ser Phe Ser Leu Pro Leu Leu Glu Asp Arg Gln Asp Ser Glu
 465 470 475 480

Ala Asp Leu Gly Asn Asp Asp Glu Glu Ala Tyr Pro Arg Gly Thr Ile
 485 490 495

Ala Arg Pro Thr Ser Leu Arg Met Leu Leu Asn Ala Pro Thr His Thr
 500 505 510

Val His His Tyr Trp Arg Arg Phe Asp Asp Tyr Phe Met Arg Pro Val
 515 520 525

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<211> 1623

<212> DNA

<213> Zea mays

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CD097PCT.ST25.txt

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<211> 540

<212> PRT

<213> Zea mays

<400> 10

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Leu	Leu	Cys	Ala	Cys	Ile	Val	Leu	Gly	His	Leu	Leu	Glu	Glu	Asn	Arg
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Trp	Val	Asn	Glu	Ser	Thr	Ala	Leu	Ile	Val	Gly	Leu	Gly	Thr	Gly	Thr
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Val	Ile	Leu	Met	Ile	Ser	Arg	Gly	Val	Val	Ile	His	Val	Leu	Val	Phe
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Ser	Glu	Asp	Leu	Phe	Phe	Tyr	Leu	Leu	Pro	Pro	Ile	Ile	Phe	Asn	
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Ala	Gly	Phe	Gln	Val	Lys	Lys	Gln	Phe	Phe	Arg	Asn	Phe	Ile	Thr
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Ile	Thr	Leu	Phe	Gly	Ala	Val	Gly	Thr	Leu	Ile	Ser	Phe	Thr	Val	Ile
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Ser	Leu	Gly	Ala	Leu	Gly	Leu	Ile	Ser	Arg	Leu	Asn	Ile	Gly	Ala	Leu
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Glu	Leu	Gly	Asp	Tyr	Leu	Ala	Leu	Gly	Ala	Ile	Phe	Ser	Ala	Thr	Asp
145							150				155				160

Ser	Val	Cys	Thr	Leu	Gln	Val	Leu	Ser	Gln	Asp	Glu	Thr	Pro	Phe	Leu
165							170				175				

Tyr	Ser	Leu	Val	Phe	Gly	Glu	Gly	Val	Val	Asn	Asp	Ala	Thr	Ser	Val
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CD097PCT.ST25.txt

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Val Val Phe Asn Ala Leu Gln Asn Phe Asp Ile Thr His Ile Asp Ala
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Glu Val Val Phe His Leu Leu Gly Asn Phe Phe Tyr Leu Phe Leu Leu
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Ser Thr Val Leu Gly Val Ala Thr Gly Leu Ile Ser Ala Leu Val Ile
 225 230 235 240

Lys Lys Leu Tyr Phe Gly Arg His Ser Thr Asp Arg Glu Val Ala Leu
 245 250 255

Met Met Leu Met Ala Tyr Leu Ser Tyr Met Leu Ala Glu Leu Phe Ala
 260 265 270

Leu Ser Gly Ile Leu Thr Val Phe Phe Gly Cys Ile Val Met Ser His
 275 280 285

Tyr Thr Trp His Asn Val Thr Glu Ser Ser Arg Ile Thr Thr Lys His
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Ala Phe Ala Thr Leu Ser Phe Leu Ala Glu Thr Phe Leu Phe Leu Tyr
 305 310 315 320

Val Gly Met Asp Ala Leu Asp Ile Asp Lys Trp Arg Ser Val Ser Asp
 325 330 335

Thr Pro Gly Lys Ser Leu Ala Ile Ser Ser Ile Leu Met Gly Leu Val
 340 345 350

Met Val Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu Ser Asn
 355 360 365

Leu Ala Lys Lys Thr Glu His Glu Lys Ile Ser Trp Lys Gln Gln Val
 370 375 380

Val Ile Trp Trp Ala Gly Leu Met Arg Gly Ala Val Ser Met Ala Leu
 385 390 395 400

Ala Tyr Lys Lys Phe Thr Arg Ala Gly His Thr Gln Val Arg Gly Asn
 405 410 415

Ala Ile Met Ile Thr Ser Thr Ile Ile Val Val Leu Phe Ser Thr Met
 420 425 430

Val Phe Gly Leu Leu Thr Lys Pro Leu Ile Asn Leu Leu Ile Pro His
 435 440 445

Arg Asn Ala Thr Ser Met Leu Ser Asp Asp Ser Ser Pro Lys Ser Leu
 450 455 460

His Ser Pro Leu Leu Thr Ser Gln Leu Gly Ser Asp Leu Glu Glu Pro
 465 470 475 480

Thr Asn Ile Pro Arg Pro Ser Ser Ile Arg Gly Glu Phe Leu Thr Met
 485 490 495

CD097PCT.ST25.txt

Thr Arg Thr Val His Arg Tyr Trp Arg Lys Phe Asp Asp Ala Phe Met
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<213> Zea mays

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taa 1623

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<212> PRT
<213> Zea mays

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CD097PCT.ST25.txt

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Phe Ser Glu Asp Leu Phe Phe Ile Tyr Leu Leu Pro Pro Ile Ile Phe		
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Asn Ala Gly Phe Gln Val Lys Lys Gln Phe Phe Arg Asn Phe Ile		
100	105	110
Thr Ile Ile Leu Phe Gly Ala Ile Gly Thr Leu Ile Ser Phe Val Ile		
115	120	125
Ile Ser Leu Gly Ala Met Gly Leu Phe Lys Lys Leu Asp Val Gly Pro		
130	135	140
Leu Glu Leu Gly Asp Tyr Leu Ala Ile Gly Ala Ile Phe Ser Ala Thr		
145	150	155
Asp Ser Val Cys Thr Leu Gln Val Leu Asn Gln Asp Glu Thr Pro Leu		
165	170	175
Leu Tyr Ser Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr Ser		
180	185	190
Ile Val Val Phe Asn Ala Leu Gln Asn Phe Asp Ile Thr His Ile Asn		
195	200	205
Ala Glu Val Val Phe His Leu Leu Gly Asn Phe Leu Tyr Leu Phe Leu		
210	215	220
Leu Ser Thr Val Leu Gly Val Ala Thr Gly Leu Ile Ser Ala Leu Val		
225	230	240
Ile Lys Lys Ile Tyr Phe Gly Arg His Ser Thr Asp Arg Glu Val Ala		
245	250	255
Leu Met Met Leu Met Ala Tyr Leu Ser Tyr Met Leu Ala Glu Leu Phe		
260	265	270
Ala Leu Ser Gly Ile Leu Thr Val Phe Phe Gly Cys Ile Val Met Ser		
275	280	285
His Tyr Thr Trp His Asn Val Thr Glu Ser Ser Arg Ile Thr Thr Lys		
290	295	300
His Ala Phe Ala Thr Leu Ser Phe Leu Ala Glu Thr Phe Ile Phe Leu		
305	310	315
Tyr Val Gly Met Asp Ala Leu Asp Ile Glu Lys Trp Arg Ser Val Ser		
325	330	335
Asp Thr Pro Gly Lys Ser Ile Ala Ile Ser Ser Ile Leu Met Gly Leu		
340	345	350

CD097PCT.ST25.txt

Val Met Leu Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu Ser
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Asn Leu Ala Lys Lys Asn Glu His Glu Lys Ile Ser Trp Lys Gln Gln
 370 375 380

Val Val Ile Trp Trp Ser Gly Leu Met Arg Gly Ala Val Ser Met Ala
 385 390 395 400

Leu Ala Tyr Asn Lys Phe Thr Arg Ala Gly His Thr Glu Val Arg Gly
 405 410 415

Asn Glu Ile Met Ile Thr Ser Thr Ile Thr Val Val Leu Phe Ser Thr
 420 425 430

Val Val Phe Gly Leu Leu Thr Lys Pro Leu Ile Arg Leu Leu Met Pro
 435 440 445

His Arg His Leu Thr Met Leu Ser Asp Asp Ser Thr Pro Lys Ser Leu
 450 455 460

His Ser Pro Leu Leu Thr Ser Gln Leu Gly Ser Ser Ile Glu Glu Pro
 465 470 475 480

Thr Gln Ile Pro Arg Pro Thr Asn Ile Arg Gly Glu Phe Thr Thr Met
 485 490 495

Thr Arg Thr Val His Arg Tyr Trp Arg Lys Phe Asp Asp Lys Phe Met
 500 505 510

Arg Pro Met Phe Gly Arg Gly Phe Val Pro Phe Val Pro Gly Ser
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Pro Thr Glu Arg Asn Pro His Asp Leu Ser Lys Pro
 530 535 540

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<213> Zea mays

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CD097PCT.ST25.txt

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35 40 45

Asn Glu Ser Ile Thr Ala Ile Leu Val Gly Ala Ala Thr Gly Thr Val
50 55 60

Ile Leu Leu Ile Ser Lys Gly Lys Ser Ser His Ile Leu Val Phe Asp
65 70 75 80

Glu Glu Leu Phe Phe Ile Tyr Leu Leu Pro Pro Ile Ile Phe Asn Ala
85 90 95

Gly Phe Gln Val Lys Lys Lys Gln Phe Phe Arg Asn Phe Ile Thr Ile
100 105 110

Ile Leu Phe Gly Ala Ile Gly Thr Leu Ile Ser Phe Val Ile Ile Ser
115 120 125

Leu Gly Ala Met Gly Leu Phe Lys Lys Leu Asp Val Gly Pro Leu Glu
130 135 140

Leu Gly Asp Tyr Leu Ala Ile Gly Ala Ile Phe Ser Ala Thr Asp Ser
145 150 155 160

Val Cys Thr Leu Gln Val Leu Asn Gln Asp Glu Thr Pro Leu Leu Tyr
165 170 175

Ser Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr Ser Val Val
180 185 190

Leu Phe Asn Ala Val Gln Lys Ile Asp Phe Glu His Leu Thr Gly Glu
195 200 205

CD097PCT.ST25.txt

Val Ala Leu Gln Val Phe Gly Asn Phe Leu Tyr Leu Phe Ser Thr Ser
 210 215 220

Thr Val Leu Gly Ile Ala Thr Gly Leu Ile Thr Ala Phe Val Leu Lys
 225 230 235 240

Thr Leu Tyr Phe Gly Arg His Ser Thr Thr Arg Glu Leu Ala Ile Met
 245 250 255

Val Leu Met Ala Tyr Leu Ser Phe Met Leu Ala Glu Leu Phe Ser Leu
 260 265 270

Ser Gly Ile Ile Thr Val Phe Phe Cys Gly Val Leu Met Ser His Val
 275 280 285

Thr Trp His Asn Val Thr Glu Ser Ser Arg Ile Thr Ser Arg His Val
 290 295 300

Phe Ala Met Leu Ser Phe Ile Ala Glu Thr Phe Leu Phe Leu Tyr Val
 305 310 315 320

Gly Thr Asp Ala Leu Asp Phe Thr Lys Trp Lys Thr Ser Ser Leu Ser
 325 330 335

Phe Gly Lys Ser Leu Gly Val Ser Ser Val Leu Leu Gly Leu Val Leu
 340 345 350

Val Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu Ser Asn Leu
 355 360 365

Ser Lys Lys His Pro Gly Glu Lys Ile Thr Ile Arg Gln Gln Val Val
 370 375 380

Ile Trp Trp Ala Gly Leu Met Arg Gly Ala Val Ser Ile Ala Leu Ala
 385 390 395 400

Phe Asn Lys Phe Thr Arg Ala Gly His Thr Gln Val Arg Gly Asn Ala
 405 410 415

Ile Met Ile Thr Ser Thr Ile Ile Val Val Leu Phe Ser Thr Val Val
 420 425 430

Phe Gly Leu Leu Thr Lys Pro Leu Ile Asn Leu Leu Ile Pro His Arg
 435 440 445

Asn Ala Thr Ser Met Leu Ser Asp Asp Ser Ser Pro Lys Ser Leu His
 450 455 460

Ser Pro Leu Leu Thr Ser Gln Leu Ile Ser Ser Ile Glu Glu Pro Thr
 465 470 475 480

Gln Ile Pro Arg Pro Thr Asn Ile Arg Gly Glu Phe Met Thr Met Thr
 485 490 495

Arg Thr Val His Arg Tyr Trp Arg Lys Phe Asp Asp Lys Phe Met Arg
 500 505 510

Pro Met Phe Gly Gly Arg Gly Phe Val Pro Phe Val Pro Gly Ser Pro

CD097PCT.ST25.txt

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Ala Cys Ile Val Leu Gly His Leu Leu Glu Glu Asn Arg Trp Leu Asn		
35	40	45
Glu Ser Ile Thr Ala Leu Ile Ile Gly Leu Gly Thr Gly Val Val Ile		
50	55	60
Leu Leu Ile Ser Arg Gly Lys Asn Ser Arg Leu Leu Val Phe Ser Glu		

CD097PCT.ST25.txt

65	70	75	80
Asp Leu Phe Phe Ile Tyr Leu Leu Pro Pro Ile Ile Phe Asn Ala Gly			
85	90	95	
Phe Gln Val Lys Lys Lys Gln Phe Phe Arg Asn Phe Met Thr Ile Thr			
100	105	110	
Leu Phe Gly Ala Val Gly Thr Met Ile Ser Phe Phe Thr Ile Ser Leu			
115	120	125	
Gly Ala Ile Ala Thr Phe Ser Arg Met Ser Ile Gly Thr Leu Asp Val			
130	135	140	
Gly Asp Phe Leu Ala Ile Gly Ala Ile Phe Ser Ala Thr Asp Ser Val			
145	150	155	160
Cys Thr Leu Gln Val Leu His Gln Asp Glu Thr Pro Phe Leu Tyr Ser			
165	170	175	
Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr Ser Val Val Leu			
180	185	190	
Phe Asn Ala Val Gln Lys Ile Gln Phe Thr His Ile Asn Ala Trp Thr			
195	200	205	
Ala Leu Gln Leu Ile Gly Asn Phe Leu Tyr Leu Phe Ser Thr Ser Thr			
210	215	220	
Leu Leu Gly Ile Gly Thr Gly Leu Ile Thr Ala Phe Val Leu Lys Lys			
225	230	235	240
Leu Tyr Phe Gly Arg His Ser Thr Thr Arg Glu Leu Ala Ile Met Ile			
245	250	255	
Leu Met Ala Tyr Leu Ser Tyr Met Leu Ala Glu Leu Phe Ser Leu Ser			
260	265	270	
Gly Leu Leu Thr Val Phe Phe Cys Gly Val Leu Met Ser His Val Thr			
275	280	285	
Trp His Asn Val Thr Glu Ser Ser Arg Thr Thr Ser Arg His Val Phe			
290	295	300	
Ala Thr Leu Ser Phe Ile Ser Glu Thr Phe Ile Phe Leu Tyr Val Gly			
305	310	315	320
Met Asp Ala Leu Asp Phe Glu Lys Trp Lys Thr Ser Ser Leu Ser Phe .			
325	330	335	
Gly Gly Thr Leu Gly Val Ser Gly Val Leu Met Gly Leu Val Met Leu			
340	345	350	
Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu Ser Asn Leu Ala			
355	360	365	
Lys Lys His Gln Ser Glu Lys Ile Ser Phe Arg Met Gln Val Val Ile			
370	375	380	

CD097PCT.ST25.txt

Trp Trp Ala Gly Leu Met Arg Gly Ala Val Ser Met Ala Leu Ala Leu
 385 390 395 400

Asn Lys Phe Thr Arg Ser Gly His Thr Gln Leu His Gly Asn Ala Ile
 405 410 415

Met Ile Thr Ser Thr Ile Thr Val Val Leu Phe Ser Thr Met Val Phe
 420 425 430

Gly Met Ile Thr Lys Pro Leu Ile Arg Leu Leu Leu Pro Ala Ser Gly
 435 440 445

His Pro Arg Glu Leu Ser Glu Pro Ser Ser Pro Lys Ser Phe His Ser
 450 455 460

Pro Leu Leu Thr Ser Gln Gln Gly Ser Asp Leu Glu Ser Thr Thr Asn
 465 470 475 480

Ile Val Arg Pro Ser Ser Leu Arg Gly Leu Leu Thr Lys Pro Thr His
 485 490 495

Thr Val His Tyr Tyr Trp Arg Lys Phe Asp Asp Ala Leu Met Arg Pro
 500 505 510

Val Phe Gly Gly Arg Gly Phe Val Pro Phe Val Pro Gly Ser Pro Thr
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Glu Arg Asn Pro Pro Asp Leu Ser Lys Ala
 530 535

<210> 17

<211> 2564

<212> DNA

<213> Hordeum vulgare

<400> 17

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gtttCCCGTG	ccattCTTTC	cctCCCCACC	ccggCCCCGG	gcacGAAGCA	gcggCGGAGA	180
cgggGCCAGG	aggAGGAGGA	gctCGGCTGT	tcttCGTCTC	cccGTCGATT	cgtCTCCGGA	240
ttagCGCCG	cggCCGTTCC	ccgAGGGCTC	cgtCCGGGTT	gattCGATCT	gattGAAAAAA	300
gccccGCTCT	ttccccGAGG	gcgcGCGCTC	gctCGCCGGA	gctAGCTGTG	tctCGTTCCG	360
ccggGCTCAA	ggaAGAAAGAG	taacGGGCGG	gatGGCGTTC	gaagtGGTGG	cggCGCAGTT	420
ggcgcGGCTG	agcGACGCGC	tggCCACCTC	ggaccACGCC	tccGTTGGTCT	ccatCAACCT	480
tttcGTCGCG	ctgCTCTGCG	cctGcatCGT	cctCGGCCAC	ctcCTCGAGG	agaACCGCTG	540
gctcaACAGAG	tccatCACCG	ccctCATCAT	cggGCTGTGC	accGGCGTGG	tgatCCTGAT	600
gaccACCAAG	gggAAAGAGCT	cgcACGTGCT	cgtCTTCAGC	gaggACCTCT	tctTCATATA	660
cctCCCTCCCT	cccatCATCT	tcaACGCCGG	tttCCAGGTG	aagaAGAAGC	agtTTTCCG	720
gaattTCATG	acaATCACAT	tattCGGCGC	tgtCGGGACG	atgattTCAT	tctTCACAAAT	780
ctctCTTGTCT	gccATTGCGA	tattCAGCAA	gatGAACATT	gggACACTGG	atgtATCAGA	840
ttttCTCGCA	attGGAGCCA	tctttCCG	gacAGATTCT	gtctGCACTT	tacAGGTTCT	900
caatCAGGAC	gagACGCCCT	tttCTGTACAG	tctAGTTTC	ggggAAAGTG	tttGTAACGA	960
tgccCACATCA	gtcGTGCTTT	tcaACGCGCT	ccAGAACCTC	gatCCTAAC	aaATCGATGC	1020
aatCGTCATT	ctGAAGTTCT	tggGAAACCTT	ctGCTACTTA	ttcGTGTCAA	gcACCTTCCT	1080
tggAGTATT	tctGGATTGC	tcAGTGCATA	cataATCAAG	aagtTATACA	tagGAAGGCA	1140
ttctACTGAC	cgtGAGGTTG	cgcttatGAT	gctCATGGCC	tacCTCTCAT	atATGCTAGC	1200
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CD097PCT.ST25.txt

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cgagaagtgg	aaatttgcta	gtgacagccc	tggcaaATCC	atcggaATAA	gctcaATTtT	1440
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cctgacaAG	aagacGGAGC	tcgaaaaAA	aagctggagg	cagcaaATCG	taatatGGTG	1560
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gaaggcGAAG	tctcattac	tattataGTG	tttggtgtAC	tcggaggGCC	gaagaaggCG	2160
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ccatTTCTCC	gctccttGGC	taggagtCTC	tggcctcCTG	cataatCTAC	agtgttatt	2400
aatctcCTCC	cccacTTCT	agtggattGG	tgtatggTG	tgtactttAC	caaggTGTGT	2460
gagatgagtG	atgatcttGT	ggcctggTTG	ctacaaAGAA	ctcatctCAA	agttatctAT	2520
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<210> 18

<211> 538

<212> PRT

<213> Hordeum vulgare

<400> 18

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Leu Ala Thr Ser Asp His Ala Ser Val Val Ser Ile Asn Leu Phe Val		
20	25	30

Ala Leu Leu Cys Ala Cys Ile Val Leu Gly His Leu Leu Glu Glu Asn		
35	40	45

Arg Trp Leu Asn Glu Ser Ile Thr Ala Leu Ile Ile Gly Leu Cys Thr		
50	55	60

Gly Val Val Ile Leu Met Thr Thr Lys Gly Lys Ser Ser His Val Leu			
65	70	75	80

Val Phe Ser Glu Asp Leu Phe Phe Ile Tyr Leu Leu Pro Pro Ile Ile		
85	90	95

Phe Asn Ala Gly Phe Gln Val Lys Lys Lys Gln Phe Phe Arg Asn Phe		
100	105	110

Met Thr Ile Thr Leu Phe Gly Ala Val Gly Thr Met Ile Ser Phe Phe		
115	120	125

Thr Ile Ser Leu Ala Ala Ile Ala Ile Phe Ser Lys Met Asn Ile Gly		
130	135	140

Thr Leu Asp Val Ser Asp Phe Leu Ala Ile Gly Ala Ile Phe Ser Ala			
145	150	155	160

CD097PCT.ST25.txt

Thr Asp Ser Val Cys Thr Leu Gln Val Leu Asn Gln Asp Glu Thr Pro
 165 170 175
 Phe Leu Tyr Ser Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr
 180 185 190
 Ser Val Val Leu Phe Asn Ala Leu Gln Asn Phe Asp Pro Asn Gln Ile
 195 200 205
 Asp Ala Ile Val Ile Leu Lys Phe Leu Gly Asn Phe Cys Tyr Leu Phe
 210 215 220
 Val Ser Ser Thr Phe Leu Gly Val Phe Ser Gly Leu Leu Ser Ala Tyr
 225 230 235 240
 Ile Ile Lys Lys Leu Tyr Ile Gly Arg His Ser Thr Asp Arg Glu Val
 245 250 255
 Ala Leu Met Met Leu Met Ala Tyr Leu Ser Tyr Met Leu Ala Glu Leu
 260 265 270
 Leu Asp Leu Ser Gly Ile Leu Thr Val Phe Phe Cys Gly Ile Val Met
 275 280 285
 Ser His Tyr Thr Trp His Asn Val Thr Glu Ser Ser Arg Val Thr Thr
 290 295 300
 Lys His Ala Phe Ala Thr Leu Ser Phe Ile Ala Glu Thr Phe Leu Phe
 305 310 315 320
 Leu Tyr Val Gly Met Asp Ala Leu Asp Ile Glu Lys Trp Lys Phe Ala
 325 330 335
 Ser Asp Ser Pro Gly Lys Ser Ile Gly Ile Ser Ser Ile Leu Leu Gly
 340 345 350
 Leu Val Leu Val Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu
 355 360 365
 Ser Asn Leu Thr Lys Lys Thr Glu Leu Glu Lys Ile Ser Trp Arg Gln
 370 375 380
 Gln Ile Val Ile Trp Trp Ala Gly Leu Met Arg Gly Ala Val Ser Ile
 385 390 395 400
 Ala Leu Ala Tyr Asn Lys Phe Thr Arg Ser Gly His Thr Gln Leu His
 405 410 415
 Gly Asn Ala Ile Met Ile Thr Ser Thr Ile Thr Val Val Leu Phe Ser
 420 425 430
 Thr Met Leu Phe Gly Ile Leu Thr Lys Pro Leu Ile Arg Phe Leu Leu
 435 440 445
 Pro Ala Ser Ser Asn Gly Asp Pro Ser Glu Pro Ser Ser Pro Lys Ser
 450 455 460

CD097PCT.ST25.txt

Leu His Ser Pro Leu Leu Thr Ser Met Leu Gly Ser Asp Met Glu Ala
 465 470 475 480

Pro Leu Pro Ile Val Arg Pro Ser Ser Leu Arg Met Leu Ile Thr Lys
 485 490 495

Pro Thr His Thr Ile His Tyr Tyr Trp Arg Lys Phe Asp Asp Ala Leu
 500 505 510

Met Arg Pro Met Phe Gly Gly Arg Gly Phe Val Pro Tyr Ser Pro Gly
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Ser Pro Thr Asp Pro Asn Val Ile Val Ala
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<210> 19

<211> 2422

<212> DNA

<213> Triticum aestivum

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tcgc当地	gcaacggaga	agccattaca	gttccaggag	acactctgaa	ctgtAACAGG	1680
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ttgc当地	gacaggaaga	tgaaccctt	taacggat	gctgtatca	tcatgc当地	1860
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acagcgaggg	cgtcatgtgc	ggcgc当地	tcaaggctga	cgccttcc	aagatcaact	2160
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CD097PCT.ST25.txt

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 <213> Triticum aestivum

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 35 40 45

Arg Trp Leu Asn Glu Ser Ile Thr Ala Leu Ile Ile Gly Leu Cys Thr
 50 55 60

Gly Val Val Ile Leu Met Thr Thr Lys Gly Lys Ser Ser His Val Leu
 65 70 75 80

Val Phe Ser Glu Asp Leu Phe Phe Ile Tyr Leu Leu Pro Pro Ile Ile
 85 90 95

Phe Asn Ala Gly Phe Gln Val Lys Lys Lys Gln Phe Phe Arg Asn Phe
 100 105 110

Met Ala Ile Thr Leu Phe Gly Ala Val Gly Thr Met Met Ser Phe Phe
 115 120 125

Thr Ile Ser Leu Ala Ala Ile Ala Ile Phe Ser Arg Met Asn Ile Gly
 130 135 140

Thr Leu Asp Val Ser Asp Phe Leu Ala Ile Gly Ala Ile Phe Ser Ala
 145 150 155 160

Thr Asp Ser Val Cys Thr Leu Gln Val Leu Asn Gln Asp Glu Thr Pro
 165 170 175

Phe Leu Tyr Ser Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr
 180 185 190

Ser Val Val Leu Phe Asn Ala Leu Gln Asn Phe Asp Pro Asn Gln Ile
 195 200 205

Asp Ala Ile Val Ile Leu Lys Phe Leu Gly Asn Phe Cys Tyr Leu Phe
 210 215 220

Val Ser Ser Thr Phe Leu Gly Val Phe Thr Gly Leu Leu Ser Ala Tyr
 225 230 235 240

Val Ile Lys Lys Leu Tyr Ile Gly Arg His Ser Thr Asp Arg Glu Val
 245 250 255

CD097PCT.ST25.txt

Ala Leu Val Met Leu Met Ala Tyr Leu Ser Tyr Met Leu Ala Glu Leu
 260 265 270

Leu Asp Leu Ser Gly Ile Leu Thr Val Phe Phe Cys Gly Ile Val Met
 275 280 285

Ser His Tyr Thr Trp His Asn Val Thr Glu Ser Ser Arg Val Thr Thr
 290 295 300

Lys His Ala Phe Ala Thr Leu Ser Phe Ile Ala Glu Thr Phe Leu Phe
 305 310 315 320

Leu Tyr Val Gly Met Asp Ala Leu Asp Ile Glu Lys Trp Lys Phe Ala
 325 330 335

Ser Asp Ser Pro Gly Lys Ser Ile Gly Ile Ser Ser Ile Leu Leu Gly
 340 345 350

Leu Val Leu Val Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu
 355 360 365

Ser Asn Leu Thr Lys Lys Thr Glu Leu Glu Lys Ile Ser Trp Arg Gln
 370 375 380

Gln Ile Val Ile Trp Trp Ala Gly Leu Met Arg Gly Ala Val Ser Ile
 385 390 395 400

Ala Leu Ala Tyr Asn Lys Phe Thr Arg Ser Gly His Thr Gln Leu His
 405 410 415

Gly Asn Ala Ile Met Ile Thr Ser Thr Ile Thr Val Val Leu Phe Ser
 420 425 430

Thr Met Leu Phe Gly Ile Leu Thr Lys Pro Leu Ile Arg Phe Leu Leu
 435 440 445

Pro Ala Ser Ser Asn Gly Ala Ala Ser Asp Pro Ala Ser Pro Lys Ser
 450 455 460

Leu His Ser Pro Leu Leu Thr Ser Gln Leu Gly Ser Asp Leu Glu Ala
 465 470 475 480

Pro Leu Pro Ile Val Arg Pro Ser Ser Leu Arg Met Leu Ile Thr Lys
 485 490 495

Pro Thr His Thr Ile His Tyr Tyr Trp Arg Lys Phe Asp Asp Ala Leu
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Met Arg Pro Met Phe Gly Gly Arg Gly Phe Val Pro Tyr Ser Pro Gly
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Ser Pro Thr Asp Pro Asn Val Leu Val Glu
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<210> 21
 <211> 1726
 <212> DNA

CD097PCT.ST25.txt

<213> Oryza sativa

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ccttcgtgc	ctggttcgcc	agtggagcgg	agcatccatg	gatctcaact	gggcactgtg	1680
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<210> 22

<211> 544

<212> PRT

<213> Oryza sativa

<400> 22

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								20				25		30	

Leu	Cys	Ser	Cys	Ile	Val	Ile	Gly	His	Leu	Leu	Glu	Gly	Asn	Arg	Trp
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Val	Asn	Glu	Ser	Ile	Thr	Ala	Leu	Val	Met	Gly	Leu	Ile	Thr	Gly	Gly
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Val	Ile	Leu	Leu	Val	Ser	Gly	Gly	Lys	Asn	Ser	His	Ile	Leu	Val	Phe
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Ser	Glu	Asp	Leu	Phe	Phe	Ile	Tyr	Leu	Leu	Pro	Pro	Ile	Ile	Phe	Asn
								85			90		95		

Ala	Gly	Phe	Gln	Val	Lys	Lys	Gln	Phe	Phe	Arg	Asn	Phe	Met	Thr	
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CD097PCT.ST25.txt

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Gln Leu Gly Asp Tyr Leu Ala Ile Gly Ala Ile Phe Ser Ala Thr Asp		
145	150	155
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Ser Val Cys Thr Leu Gln Val Leu Asn Gln Asp Glu Thr Pro Leu Leu		
165	170	175
Tyr Ser Leu Val Phe Gly Glu Gly Val Val Asn Asp Ala Thr Ser Val		
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Val Leu Phe Asn Ala Ile Glu Asp Ile Asp Ile Ala Asn Phe Asp Ser		
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Leu Val Leu Leu Ala Phe Ile Gly Asn Phe Leu Tyr Leu Phe Phe Thr		
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Ser Thr Leu Leu Gly Val Val Ala Gly Leu Leu Ser Ala Tyr Ile Ile		
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Lys Lys Leu Cys Phe Ala Arg His Ser Thr Asp Arg Glu Val Ala Ile		
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Met Ile Leu Met Ala Tyr Leu Ser Tyr Met Leu Ser Met Leu Leu Asp		
260	265	270
Leu Ser Gly Ile Leu Thr Val Phe Phe Ser Gly Ile Val Met Ser His		
275	280	285
Tyr Thr Trp His Asn Val Thr Glu Ser Ser Arg Ile Thr Thr Lys His		
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Thr Phe Ala Thr Leu Ser Phe Ile Ala Glu Ile Phe Leu Phe Leu Tyr		
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Val Gly Met Asp Ala Leu Asp Ile Glu Lys Trp Lys Leu Ala Ser Ser		
325	330	335
Ser Pro Lys Lys Pro Ile Ala Leu Ser Ala Thr Ile Leu Gly Leu Val		
340	345	350
Met Val Gly Arg Ala Ala Phe Val Phe Pro Leu Ser Phe Leu Ser Asn		
355	360	365
Leu Ser Lys Lys Glu Thr Arg Pro Lys Ile Ser Phe Lys Gln Gln Val		
370	375	380
Ile Ile Trp Trp Ala Gly Leu Met Arg Gly Ala Val Ser Ile Ala Leu		
385	390	395
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Ala Tyr His Lys Phe Thr Ala Ser Gly His Thr Glu Leu Arg Ile Asn		
405	410	415

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Ala Ile Met Ile Thr Ser Thr Val Ile Val Val Leu Phe Ser Thr Met
420 425 430

Val Phe Gly Phe Phe Thr Lys Pro Leu Leu Asn Leu Leu Ile Pro Pro
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Arg Pro Asp Ile Ala Ala Asp Leu Ser Ser Gln Ser Ile Ile Asp Pro
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Leu Leu Gly Ser Leu Leu Gly Ser Asp Phe Asp Val Gly Gln Pro Ser
465 470 475 480

Pro Gln Asn Asn Leu Gln Leu Leu Leu Thr Ile Gln Thr Arg Ser Val
485 490 495

His Arg Val Trp Arg Lys Phe Asp Asp Arg Phe Met Arg Pro Met Phe
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515 520 525

Ser Ile His Gly Ser Gln Leu Gly Thr Val Thr Glu Ala Glu His Ser
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<210> 23
<211> 1902
<212> DNA
<213> Saccharomyces cerevisiae
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aatttgagag ataaactggg aacaatctt aattccgact cacaatgggt tcaaaaatttt	1800
gatgaacagg tattgaagcc agtattcttg gacaacgttt ctccatcctt acaagattcg	1860
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Phe Ile Met Leu Leu Leu Ile Ser Ala Leu Trp Ser Ser Tyr Tyr	
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85 90 95	
Phe Tyr Gly Met Val Ile Gly Leu Ile Ile Arg Met Ser Pro Gly His	
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Tyr Ile Gln Asp Thr Val Thr Phe Asn Ser Ser Tyr Phe Phe Asn Val	
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130 135 140	
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145 150 155 160	
Thr Phe Ile Ser Ala Val Val Ile Gly Ile Ile Leu Tyr Ile Trp Thr	
165 170 175	
Phe Leu Gly Leu Glu Ser Ile Asp Ile Ser Phe Ala Asp Ala Met Ser	
180 185 190	
Val Gly Ala Thr Leu Ser Ala Thr Asp Pro Val Thr Ile Leu Ser Ile	
195 200 205	
Phe Asn Ala Tyr Lys Val Asp Pro Lys Leu Tyr Thr Ile Ile Phe Gly	
210 215 220	
Glu Ser Leu Leu Asn Asp Ala Ile Ser Ile Val Met Phe Glu Thr Cys	
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CD097PCT.ST25.txt

245

250

255

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 275 280 285

Arg Tyr Pro Gln Ile Glu Ser Cys Leu Ile Leu Leu Ile Ala Tyr Glu
 290 295 300

Ser Tyr Phe Phe Ser Asn Gly Cys His Met Ser Gly Ile Val Ser Leu
 305 310 315 320

Leu Phe Cys Gly Ile Thr Leu Lys His Tyr Ala Tyr Tyr Asn Met Ser
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Arg Arg Ser Gln Ile Thr Ile Lys Tyr Ile Phe Gln Leu Leu Ala Arg
 340 345 350

Leu Ser Glu Asn Phe Ile Phe Ile Tyr Leu Gly Leu Glu Leu Phe Thr
 355 360 365

Glu Val Glu Leu Val Tyr Lys Pro Leu Leu Ile Ile Val Ala Ala Ile
 370 375 380

Ser Ile Cys Val Ala Arg Trp Cys Ala Val Phe Pro Leu Ser Gln Phe
 385 390 395 400

Val Asn Trp Ile Tyr Arg Val Lys Thr Ile Arg Ser Met Ser Gly Ile
 405 410 415

Thr Gly Glu Asn Ile Ser Val Pro Asp Glu Ile Pro Tyr Asn Tyr Gln
 420 425 430

Met Met Thr Phe Trp Ala Gly Leu Arg Gly Ala Val Gly Val Ala Leu
 435 440 445

Ala Leu Gly Ile Gln Gly Glu Tyr Lys Phe Thr Leu Leu Ala Thr Val
 450 455 460

Leu Val Val Val Val Leu Thr Val Ile Ile Phe Gly Gly Thr Thr Ala
 465 470 475 480

Gly Met Leu Glu Val Leu Asn Ile Lys Thr Gly Cys Ile Ser Glu Glu
 485 490 495

Asp Thr Ser Asp Asp Glu Phe Asp Ile Glu Ala Pro Arg Ala Ile Asn
 500 505 510

Leu Leu Asn Gly Ser Ser Ile Gln Thr Asp Leu Gly Pro Tyr Ser Asp
 515 520 525

Asn Asn Ser Pro Asp Ile Ser Ile Asp Gln Phe Ala Val Ser Ser Asn
 530 535 540

Lys Asn Leu Pro Asn Asn Ile Ser Thr Thr Gly Gly Asn Thr Phe Gly
 545 550 555 560

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Gly Leu Asn Glu Thr Glu Asn Thr Ser Pro Asn Pro Ala Arg Ser Ser
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 580 585 590

Asp Ser Gln Trp Phe Gln Asn Phe Asp Glu Gln Val Leu Lys Pro Val
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<212> DNA

<213> Magnaporthe grisea

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<212> PRT

<213> Magnaporthe grisea

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35 40 45

Ile Phe Phe Asn Leu Leu Pro Pro Ile Ile Leu Ser Ser Gly Tyr
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Glu Leu His Gln Ala Asn Phe Phe Arg His Ile Gly Thr Ile Leu Thr
65 70 75 80

Phe Ala Phe Ala Gly Thr Phe Leu Ser Ala Val Val Ile Gly Val Ile
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Leu Trp Leu Tyr Thr Arg Val Pro Leu Glu Gly Leu Thr Met Asn Trp
100 105 110

Ile Asp Ala Ile Ser Val Gly Ala Thr Leu Ser Ala Thr Asp Pro Val
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Ile Phe Glu Ser Ala Gln Lys Ser Ala Arg Gly Leu Thr Lys Gly Ser
165 170 175

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Asp Phe Phe Gly Ser Leu Phe Ile Gly Ala Leu Leu Gly Ile Leu Thr
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Ala Leu Met Leu Lys Tyr Thr Tyr Leu Arg Arg Phe Pro Lys Leu Glu
210 215 220

Ser Cys Leu Ile Val Leu Ile Ala Tyr Ala Thr Tyr Tyr Phe Ser Gln
225 230 235 240

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Leu Lys His Tyr Ala Tyr Phe Asn Met Ser Arg Arg Thr Gln Leu Thr
260 265 270

Thr Lys Tyr Met Phe Gln Val Leu Ala Gln Leu Ser Glu Asn Phe Ile
275 280 285

Phe Ile Tyr Leu Gly Val Ser Leu Phe Thr Asp Lys Asp Leu Gln Phe
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CD097PCT.ST25.txt

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 355 360 365

 Gly Val Ala Leu Ala Ala Leu Leu Thr Ala Lys Asp His Arg Ala Phe
 370 375 380

 Lys Ala Thr Val Leu Val Val Val Val Leu Thr Val Ile Ile Phe Gly
 385 390 395 400

 Gly Thr Thr Val Asn Val Leu Glu Ile Leu Glu Ile Arg Thr Gly Val
 405 410 415

 Thr Asp Glu Ile Asp Ser Asp Asp Glu Phe Asp Ile Glu Ala Val Gly
 420 425 430

 Gly Tyr Tyr Lys Arg Ser Gly Asn Gly Ile Gly Tyr Ser Pro Ala Gly
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 Arg Asn Gly Val Val Pro Leu Asp Thr Arg Pro Gly Arg Arg Arg Asp
 450 455 460

 Ser Asn Gly Ala Val Gly Gly Arg Asp Ala Ser Gly Trp Ser Ser Gly
 465 470 475 480

 His Arg Ser Pro Leu Ser Ala Ala Arg Pro Gly Ser Leu Val Arg Thr
 485 490 495

 Gly Ser Thr Arg Glu Glu Ala Glu Arg Leu Asp Leu Leu Gly Asn Pro
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 Gly Gly Ser Thr Asp Ser Asp Asp Phe Gly Ser Asp Ile Asp Thr Ser
 515 520 525

 Asp Leu Pro Pro Pro Ala Pro Arg Arg Arg Ser Ser Pro Met Pro Pro
 530 535 540

 Thr Gly Asp Glu Glu Ala Ala Gly Leu Pro Ala Gly Gly Ser Arg Thr
 545 550 555 560

 Arg Ser Asn Thr Glu Thr Gly Gly Leu Ser Ala Thr Ala Ala Ile Arg
 565 570 575

 Gln Leu Phe Ser Thr Glu Asp Pro Thr Ala Leu Phe Arg Gln Leu Asp
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 Glu Asp Tyr Ile Lys Pro Lys Leu Leu Leu Asp Gly Gly Ala Gly Arg
 595 600 605

CD097PCT.ST25.txt

Gly Asn Gly Gly Ala Gly Gly Ser Ser
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<210> 27

<211> 654

<212> DNA

<213> Oryza sativa

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ccttattcaca ttgacacata aagttagtga tgagtcataa tattattttc tttgttaccc	420
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aaaactaaca ctctaaagca accgatggg aagcatctat aaatagacaa gcacaatgaa	600
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<212> DNA

<213> Zea mays

<400> 28

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ataatctata gtactacaat aatatcagtg ttttagagaa tcatataaat gaacagttag	180
acatggctca aaggacaatt gagtttttgc acaacaggac tctacagttt tattttta	240
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<212> DNA

<213> Artificial sequence

<220>

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<210> 30

CD097PCT.ST25.txt

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